

- 1 In the claims:
- 2 1. A method for concurrently acquiring, processing, and transmitting digital video
- 3 and still images, comprising:
- 4 acquiring video frames from one or more image sensors;
- 5 processing the video frames using a video pipeline, wherein the video pipeline
- 6 includes one or more processors;
- 7 temporarily storing the video frames in a frame buffer when one or more high
- 8 resolution still images are acquired during the video frame acquisition; and
- 9 processing the high resolution still images using a still image pipeline, wherein the
- 10 still image pipeline runs concurrently with the video pipeline.
- 11 2. The method of claim 1, wherein the processing the video frames step comprises:
- 12 downsampling and demosaicing the video frames; and
- 13 color correcting the video frames.
- 14 3. The method of claim 1, wherein the processing the high resolution still images step
- 15 comprises:
- 16 downsampling and demosaicing the high resolution still images using complex
- 17 demosaicing algorithms; and
- 18 color correcting the high resolution still images using complex color correction
- 19 algorithms.
- 20 4. The method of claim 1, further comprising compressing the video frames and the
- 21 high resolution still images.
- 22 5. The method of claim 1, further comprising transmitting the video frames and the
- 23 high resolution still images through communications channels.
- 24 6. The method of claim 1, further comprising storing the video frames and high
- 25 resolution still images in a storage device.
- 26 7. The method of claim 1, further comprising emptying the frame buffer by the
- 27 processors after the high resolution still images are processed, transmitted or stored.
- 28 8. The method of claim 1, wherein the processing the high resolution still images
- 29 step includes processing the high resolution still images using the same image sensors and
- 30 the same processors in the video pipeline.
- 31 9. The method of claim 1, wherein the processing the video frames step and the
- 32 processing the high resolution still images step include processing the video frames and
- 33 the high resolution still images using separate hardware processing pipelines.

- 1 10. A concurrent dual video and still image pipeline for a video camera system,
2 comprising:
3 one or more image sensors capable of acquiring video frames and high resolution
4 still images, wherein the high resolution still images are acquired during the video frame
5 acquisition;
6 a sensor controller capable of storing the video frames into a memory;
7 one or more processors capable of concurrently processing the video frames and
8 the high resolution still images, wherein the video frames are processed using a video
9 pipeline, and the high resolution still images are processed using a still image pipeline,
10 and wherein the video pipeline runs concurrently with the still image pipeline;
11 a frame buffer capable of temporarily storing the video frames when the high
12 resolution still images are being processed.
- 13 11. The concurrent dual video and still image pipeline of claim 10, further comprising
14 a storage device capable of storing the video frames and the high resolution still images.
- 15 12. The concurrent dual video and still image pipeline of claim 10, further comprising
16 an input/output unit capable of transmitting the video frames and the high resolution still
17 images through communications channels.
- 18 13. The concurrent dual video and still image pipeline of claim 10, wherein the frame
19 buffer is emptied after the high resolution still images are processed, transmitted or
20 stored.
- 21 14. The concurrent dual video and still image pipeline of claim 10, wherein the
22 processors are selected from a microprocessor, an application specific integrated circuit
23 (ASIC), and a digital signal processor.
- 24 15. The concurrent dual video and still image pipeline of claim 10, wherein the
25 processors downsample, demosaic, and color correct the video frames.
- 26 16. The concurrent dual video and still image pipeline of claim 10, wherein the
27 processors downsample, demosaic, and color correct the high resolution still images using
28 complex algorithms.
- 29 17. The concurrent dual video and still image pipeline of claim 10, wherein the video
30 pipeline and the still image pipeline use the same image sensors and the same processors.
- 31 18. The concurrent dual video and still image pipeline of claim 10, wherein the video
32 pipeline and the still image pipeline use separate image sensors and separate hardware
33 processing pipelines.

19. The concurrent dual video and still image pipeline of claim 10, wherein the video pipeline and the still image pipeline use the same image sensors and separate hardware processing pipelines.

20. A computer readable medium providing instructions for concurrently acquiring, processing, and transmitting digital video and high resolution still images, the instructions comprising:

acquiring video frames from one or more image sensors;

processing the video frames using a video pipeline, wherein the video pipeline includes one or more processors;

temporarily storing the video frames in a frame buffer when one or more high resolution still images are acquired during the video frame acquisition; and

processing the high resolution still images using a still image pipeline, wherein the still image pipeline runs concurrently with the video pipeline.